

**THE INFLUENCE OF KIN NETWORKS ON FOOD CHOICE IN VANUATU**

by

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University of Pittsburgh, 2014

**ABSTRACT**

Vanuatu, a Pacific island nation, is experiencing high rates of stunting and wasting in children despite the implementation of educational campaigns by the Vanuatu Ministry of Health targeted at reducing the prevalence of under-nutrition in the population. While researchers have studied the impact of extended kin networks on health behavior, relatively little consideration has been given to the role of kin networks in infant feeding, especially in the Pacific. This project was designed to examine the impact of kin networks, particularly grandmothers, on infant and child feeding practice in Vanuatu. Findings demonstrate that, as mothers face economic, environmental, and social pressures from kin, decision-making processes become a negotiation between biomedically driven pressures from health care workers and familial pressures regarding appropriate childcare and nutritional practices.

This research has public health significance as it highlights important implications for understanding childhood malnutrition in stable developing countries where people are not experiencing additional burdens of disease exacerbated by prolonged war, economic distress, or excessive environmental degradation. The practical importance of including kin in nutrition focused research and interventions, demonstrates expanded avenues for further public health research and practice. Thus, research results stress the importance of the broader significance of the influence of kin networks on malnutrition can be used to develop effective health care

strategies for combating childhood malnutrition in Vanuatu, and more broadly, in the context of island economies, and throughout the developing world.

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## **1.0 INTRODUCTION**

### **1.1 RESEARCH PROBLEM**

This research investigates how cultural factors, specifically influence of kin networks, impact infant and child feeding practices in Vanuatu, a country grappling with malnutrition problems. In contrast to biomedical approaches that focus solely on the body, this research examines how social factors, particularly the advice and social pressures from grandmothers, fathers and other kin, in conjunction with biomedical variables, affect childhood malnutrition. Vanuatu is an appropriate location for examining this problem, as malnutrition has already been identified as a concern for the Ministry of Health, the Cultural Centre, and for mothers. As a result, there are numerous publically available data sources documenting the biomedical problem of malnutrition throughout Vanuatu.

However, my research suggests that even though educational campaigns targeted at addressing under-nutrition have been implemented, the problem persists, with a dearth of qualitative research assessing factors that influence child-feeding practices (Evans, et al. 2001; Knowles 2007). Preliminary research revealed several shifts in the local economy and social structure. While birthrates remain high, many women are seeking new economic opportunities. Employed women must return to work soon after giving birth. Local foods are available at markets; however, opportunities to own land are limited with the influx of young people from

outer islands to the capital. This restricts the ability of mothers to grow their own food, forcing many to purchase most of their foodstuffs, frequently imported canned food and refined rice with poor nutritional value. As mothers face economic, social, and environmental pressures from kin, decision-making processes become a negotiation between biomedically driven pressures from health care workers and familial pressures regarding appropriate childcare and nutritional practices. As a result, mothers' food choice and access are based in part on syncretic meanings of appropriate childcare and nutritional practices. The primary focus of this research is concerned with examining one of these components that impacts how women make food choices and access food for their families. This paper will focus on the impact kin networks, particularly the influence of grandmothers, have on how women feed themselves and their families. Accordingly, this project is designed to answer the following overarching research question: what role do kin and kinship networks play in mothers' decision-making processes regarding food choices for their children?

This research has public health significance as it highlights important implications for understanding childhood malnutrition in stable developing countries where people are not experiencing additional burdens of disease exacerbated by prolonged war, economic distress, or excessive environmental degradation. Thus, research results stress the importance of the broader significance of the influence of kin networks on malnutrition can be used to develop effective health care strategies for combating childhood malnutrition in Vanuatu, and more broadly, in the context of island economies, and throughout the developing world.

## 1.2 LOCATING THE RESEARCH GEOGRAPHICALLY AND CULTURALLY

Vanuatu is a small independent island nation in the south Pacific located west of Fiji and northeast of New Caledonia and Australia (see Figure 1.1). Formerly called the New Hebrides, Great Britain and France jointly administered the colonial government in a style that was referred to as the condominium, and Vanuatu gained independence in 1980. The country is an archipelago that contains 83 islands, of which approximately 74 are inhabited, and has a total land area that is slightly larger than the state of Connecticut (see Figure 1.2). Currently the estimated population is somewhere between 225,000 and 250,000 people. About 98% of the population is comprised of native Vanuatu people who call themselves the ni-Vanuatu.



(2012) Courtesy of the University of Texas Libraries, the University of Texas at Austin.

Figure 1.1-1: Map of the South Pacific

This research is focused on the island of Efate, which is the third largest island in the archipelago. Efate is also the location of the capital city, Port Vila (see Figure 1.3). Port Vila is Vanuatu's largest city with approximately 47,000 residents. In recent years, Port Vila has become a tourist destination, particularly for cruise liners, and many of the jobs available in the city revolve around the tourist economy. However, many more people move to Port Vila seeking employment than there are jobs available. This has resulted in growing unemployment numbers in the city, with few people owning land (Mitchell 2004).





(1998) Courtesy of the University of Texas Libraries, the University of Texas at Austin.

Figure 1.2-2: Map of Vanuatu

The Port Vila population has the highest rates of stunting *and* the highest rates of overweight and obesity in the country. Some of the same problems that contribute to under-nutrition, such as poor financial situation of families and lack of land to grow crops, can contribute to both undernourishment and obesity as people are struggling to afford imported foodstuffs often with poor nutritional value. Recent research on obesity shows that individuals who were undernourished in childhood have a higher chance of becoming obese in adulthood (Power and Schulkin 2009). Many of the health problems that manifest in Port Vila are prevalent throughout the rest of the country too; however, it is important to conduct research in Port Vila since the problem is particularly acute there. In Port Vila, data suggest a population that has high prevalence of both under-weight young children and overweight and obese adolescents and adults. While this research is focused on malnourishment in children, it is important to understand the nutritional health of the larger population in order to contextualize the data presented in this project.



(Переход Артур 2008) Map in Creative Commons—Share Alike license.

Figure 1.3: Topographical Map of the Island of Efate

### 1.2.1 Vanuatu Prehistory

The history of a place is critical to interpreting its ethnography, since cultural events are a product of the combined historical events that precede them. Vanuatu was first settled by Austronesian speaking peoples of the Lapita Cultural Complex (Galipaud 2006). The Lapita culture is named for its distinctive ceramics style that can be found throughout the region. Lapita

is an archaeological construct that has both a horizon (in that it is found across a large space in the same time period) and a tradition (in that it demonstrates a series of changes over time) (Kirch 1997).

The geographic location of the Lapita Cultural Complex lies within the expansive topographical region of the Austronesian speaking peoples (Bellwood, et al. 1995). This region, which also includes the Bismarck Archipelago, the Solomon Islands, New Caledonia, Tonga, Samoa and Fiji, was inhabited between 3200 and 2800BP (Petchey, et al. 2011), but people might have been in the region as early as 4000BP (Kirch 2010). Lapita ceramic design is very standardized throughout the region:

the dominant feature of the Lapita style is the repetitive combination of sets of dentate or “toothed” stamps pressed into the clay prior to firing. These stamps were applied in a regular and highly consistent manner, usually in bands or zones encircling the upper parts of pots, largely on the exterior but in some cases including the rims and extending into the interior surfaces. The patterned manner in which the stamped “design elements” were combined to form particular motifs, and with which the motifs were then applied across vessel surfaces, is so consistent that Sidney Mead and others have subsequently been able to write “grammatical rules” underlying the decorative system (Kirch 1997:12-3).

Characterized by highly decorative and elaborate designs that cover much of the pot surface, Lapita ceramics are found in a range of sizes, shapes and were used for a number of different purposes.

However, Lapita culture represents more than just a style of pottery (Sheppard, et al. 2009; Valentin, et al. 2010). Innovations associated with Lapita culture include, “(1) Lapita pottery and its distinctive decorative system using dentate-stamping (i.e., using a toothed tool), incising, and probably painting...(2) a distinctive stone-adze kit not known in earlier assemblages from the Bismarcks, (3) a distinctive range of shell ornaments, and...(4) the spread of Bismarcks obsidian east into Remote Oceania and back west into Southeast Asia” (Galipaud

2006:229). In addition, Lapita culture is also characterized by similarities in linguistic structure (Blust 2008; Donohue and Denham 2008), and the technological achievement of the sailing outrigger canoe (Kirch 2010).

Because of the sudden appearance of this fully developed style of ceramics, archaeologists have been seeking connections between Lapita cultures in the Pacific islands and other regions in Southeast Asia. At the Teouma site in Vanuatu archaeologists found “that certain aspects of the burial practices at Teouma, such as the placement of skulls and other bones in pots and the use of pots in burial ceremony, have close similarities with burial practices in Neolithic Island Southeast Asia, including Taiwan, during contemporary and slightly earlier periods (Bedford, et al. 2009:230). This parallels discoveries in genetic research and indicates that Lapita expansion from Southeast Asia might have originated from Taiwan (Chow, et al. 2005).

Archaeological research in Vanuatu was very limited until the late 1970s and 1980s, and as a result archaeological studies in the country have only recently expanded with new research and data (Kirch 1986). In comparing archaeological data with linguistic and cultural anthropological research, we see resemblances between groups in the southern Tafea region of Vanuatu and Polynesian culture, including analogous spiritual figures, the notion of both sacred and talking chiefs, and the occurrence of Polynesian loan words in languages throughout the Tafea region (Spriggs 1986). Much of this similarity parallels the distinction between Austronesian and non-Austronesian speaking peoples, where Austronesians have a heritage linked to that of the Lapita peoples dating back approximately 6000 years ago (Foley 1986).

The cultural history of Vanuatu is varied. In the pre-colonial era, there were more than 113 different languages and a huge diversity in political styles and leadership throughout the

archipelago. Leadership was hereditary in Aneityum in the south, while on neighboring Tanna island it was “situational and contextual, diffused and dependent on acknowledged access to and control of ritual knowledge” (Douglas 1998:228). On Tanna, those with access to knowledge of traditions and ritual practice held power. However, on Efate and:

central Vanuatu there were titled positions of community leadership, transmitted on a hereditary basis, similar to those found in western Polynesia. In the northern region, into which Ambrym falls, leadership was rarely hereditary, but instead associated with participation in a series of rituals concerned with status alteration [known as graded societies] (Bolton 1998:181).

In these ‘graded societies’ men advanced in the hierarchy, earning a new title at each stage (Deacon 1934; Jolly 1994; Lindstrom 1997; Speiser 1996). Therefore, leadership did not follow a consistent style throughout the region. However, many of the islands of Vanuatu were characterized by a number of different small chieftainships and the general presence of some sort of hierarchy. This evidence supports the theory that there are clear parallels between Austronesian-speaking peoples and hierarchical systems and chiefs (Scaglione 1996). Many cultural practices and beliefs about societal organization that are persistent in culture today can be linked to these ‘*kastom*’ practices and beliefs.

### **1.2.2 Colonialism and Missionaries in Vanuatu**

Missionaries first arrived in the 1840s; however, before the 1880s there was very limited colonial government activity in Vanuatu, or as it was called during the colonial era, the New Hebrides. In fact, “the only land-based activity, except for punitive expeditions, had been the occupation of Port Sandwich, Malakula, and Havannah Harbour, Efate, by French troops in 1886” (Rodman 2001:25). During this time expatriates began to buy up large tracts of land

throughout the New Hebrides. They started planting copra and established the cattle ranches that still exist today.

Colonial governments began to be established more formally in the late 1800s, with the Hugh Hastings Romilly appointed as “Her British Majesty’s first consul for the New Hebrides in June 1888, but he didn’t receive his commission until five months later. Then, at the end of December 1889...his position was suddenly abolished” (Rodman 2001:24). This type of inconsistent pattern of colonial leadership was characteristic of early colonial government practice. While the British and French continued to argue and posture militarily over control of Vanuatu (Jolly 1992), the lack of many colonial officials on the ground in the country resulted in relatively little ni-Vanuatu contact with the government. There was much more interaction between ni-Vanuatu and expatriate land holders, store owners and missionaries (Bolton 1998). After the Anglo-French Convention, eventually the French and the British came to an agreement of joint colonial rule, signing an agreement on February 27, 1906 (Jolly 1992).

This began the joint French and British government in the New Hebrides known as the Condominium. This joint government was full of wasteful spending on duplicate services and disputes over which government should pay for various buildings and their maintenance (Rodman 1985; Rodman 2001). The Condominium government was characterized by having two of nearly everything—commissioners, mail delivery systems, languages, brands of Christianity, currencies, and residences. As a result the colonial operations in the New Hebrides was frequently referred to as the Pandemonium government rather than the Condominium government (Peck and Gregory 2005). Despite the establishment of two governments, indigenous New Hebrideans were not permitted citizenship from either government.

Independence movements began to emerge in the 1970s, particularly in the northern islands and Espiritu Santo. After a decade of struggle, Vanuatu finally gained independence on July 30, 1980. The colonial and missionary histories operating in Vanuatu had significant influences over cultural patterns and values that are expressed today. While perceptions of Christianity and colonialism have changed—today in Vanuatu, Christianity is embraced as part of ni-Vanuatu identity and independence, while colonialism has been completely rejected—they both have had and continue to have significant impacts on cultural practices (Eriksen 2009). The colonial legacy of the country is important to consider and understand as it influences present day perceptions of health, illness and disease (Klomp and de Haan 2009; Peck and Gregory 2005).

### **1.3 A NOTE ON KINSHIP TERMINOLOGY**

Any writing on kinship requires a clear outline of the kinship terminology used. In this paper, the child will always serve as the reference point, or Ego. Therefore, mothers were the primary interviewees in this project, speaking about their experiences and young children. In keeping with using the child as Ego, the term grandmother refers to the child's grandmother (either maternal or paternal). Therefore, as mothers were the primary interviewees, the term grandmother refers to the interviewee's mother or mother-in-law.



## **1.4 OUTLINE OF MASTER'S ESSAY**

In this paper, I present the findings of independent research conducted in the summer of 2010 on the influence of kin networks in mothers' decision-making regarding food for their families. The next section focuses on providing a background for the research problem. I discuss general trends on maternal and child health and nutrition in the developing world, in the Pacific region, and in Vanuatu. Then I report on the literature on the influence of kin networks, and the impact of grandmothers in particular. Gaps in the literature will be highlighted to demonstrate the significance of this research project. Next, I explain my research methods and results. This is followed by a discussion of the research results. Finally, I conclude by offering evidence-based recommendations for improving existing nutrition education programs in Vanuatu.

## **2.0 BACKGROUND**

Issues of child health and nutrition are of global concern and the source of much research in public health and anthropology (e.g. (Breslin, et al. 2003; Fildes, et al. 1992; Kickbusch, et al. 2005; Ram and Jolly 1998). While maternal mortality has decreased over the past five decades, each year four million children die in the neonatal period, with 99% of these deaths in developing countries (Semba and Bloem 2008). Malnutrition is intimately linked with poverty and social status and has a significant impact on an individual's susceptibility to and recovery time from disease (Farmer 2005; Turshen 2007).

Frequently, physicians and some public health officials are interested in rapidly treating diseases and do not stop to examine the larger social, political, economic and environmental structures within which the disease manifests itself. Rarely are the consequences of treatments considered and situated within these larger frameworks (Turshen 2007). Segmentation of these structures is not just a problem with physicians and public health officials, but also with social scientists who conduct research in this arena. The problem with "most analyses [is that they] separate ecological change from malnutrition, political struggle from epidemics, and social upheaval from health and healing. None consider the relation of ecological, political, and social aspects of disease to the economic transformations wrought by colonialism and capitalism" (Turshen 1984:xi). It is this disconnect that spurred many researchers to think more holistically about the multiple factors that contribute to illness and health.

In an effort to better describe these numerous variables that synergistically combine to contribute to ill health and disease within a population, Merrill Singer coined the term syndemic.

Singer explains that a syndemic is

defined as *the concentration and deleterious interaction of two or more diseases or other health conditions in a population, especially as a consequence of social inequality and the unjust exercise of power*[.] Syndemics appear to have played an important role in human disease history (and hence in human history generally), are having a significant impact on diverse populations currently, and are likely to have consequential influence on the emergent health profile of the twenty-first century (Singer 2009:XV emphasis in the original).

With the new term syndemics, Singer argues we are now better able to understand and discuss the synergistic effects of disease, economics, environment, and other socio-cultural factors that, combined, play a significant role in health. Similar to medical ecology and the political ecology of health, syndemics considers political structures and resulting inequalities, and contextualizes historical factors that combine to influence health and illness. Singer and Clair (2003) explain the inextricable link between biological and social problems, writing, "...a syndemic is a set of intertwined and mutually enhancing epidemics involving disease interactions at the biological level that develop and are sustained in a community/population because of harmful social conditions and injurious social connections" (429).

Syndemics was first developed in anthropological and public health research and is relevant to both disciplines. Because syndemics can be a beneficial way to study diseases as they spread through populations, the term was quickly adopted into work conducted at the Centers for Disease Control and Prevention (CDC), which also considers syndemics as a series of linked epidemics. The CDC states:

a syndemic orientation is defined as a way of thinking about public health work that focuses on connections among health-related problems, considers those connections when developing health policies, and aligns with other avenues of

social change to assure the conditions in which all people can be healthy (Syndemics Prevention Network 2008).

The CDC has adopted this action-oriented framework into the Syndemics Prevention Network, a group to which scholars, community leaders, and public health practitioners who are interested in developing new community-wide prevention opportunities can apply to join.

The CDC stresses that syndemics is not a replacement for epidemiological research; rather, as a theoretical approach, it shifts the emphasis away from analyses of individual diseases toward a new approach that studies the interactions of multiple diseases and health problems. There is a need for both of these types of research (Syndemics Prevention Network 2008). Following the leadership of the CDC, many public health scholars have launched projects that utilize the theory of syndemics (for examples see Gonzalez-Guarda, et al. 2011a; Gonzalez-Guarda, et al. 2011b; Operario and Nemoto 2010; Ribera and Hausmann-Muela 2011; Singer, et al. 2006). Following the research trajectory that Singer began when he first wrote about syndemics, much of this public health research analyzes co-infections with HIV/AIDS.

In the context of syndemics, co-infection is not limited to traditional definitions where one individual suffers from two biomedical diseases. This approach also considers the deleterious effects of a number of social factors that also contribute to or exacerbate disease, such as socioeconomic status, and poor living and environmental conditions which can have an impact on disease progression. For example:

diseases do not exist in a social vacuum nor solely within the bodies of those they inflict, thus their transmission and impact is never merely a biological process. Ultimately, social factors, like poverty, stigmatization, racism, sexism, ostracism, and structural violence may be of far greater importance than the nature of pathogens or the bodily systems they infect (Singer and Clair 2003:428).

Syndemics provides an opportunity for researchers to consider the full range of factors and the combined effects of those factors as they contribute to the health and illness of a population.

In addition, the concept of syndemics provides researchers an opportunity to investigate the space of local or traditional knowledge and how it impacts larger health discourses. Local or traditional knowledge refers to the ideas and understandings of indigenous peoples regarding their living environment, common diseases and cures. According to Singer (2009), “Western” knowledge refers to the biomedical knowledge of diseases that is frequently “evidence based” and devoid of the context critical to understanding health issues holistically, and can sometimes contrast with local knowledge. While biomedical analyses may be interjected into the dialogue, this does not mean that local knowledge is removed. Rather, due to the integrated nature of culture, it is likely that syncretism plays a role in new definitions that are a blend of both traditional and Western knowledge. In recognizing the pluralistic understandings of disease, we can better comprehend the roles these types of knowledge play in decision-making processes and in helping alleviate or exacerbate illness (Castro and Singer 2004).

Medical anthropology can help researchers understand the blends of various belief systems as “traditional” non-western medical practices traverse biomedical practices. Commenting on this intersection of medical practices or belief systems, Worsley (1982) writes:

Melanesians look upon our belief in the existence of immensely potent, but quite invisible agents of disease call *jermes*—which we admit we cannot see with our eyes—with the same skepticism with which Europeans look upon belief in witches or ancestral spirits....Western conceptions of health, illness, and treatment badly need the infusion of a social theory that the study and use of other medical systems could provide (345).

With the increasing complexity of cultural systems of medicine as a result of globalization, it is imperative that medical anthropologists and public health researchers consider new syncretic meanings that have been developing as non-western and biomedical approaches collide. While researchers have begun to examine these processes, more ethnographic examples and analyses are needed to enhance our understandings of these changing medical systems.

Ultimately childhood malnutrition is critical to any study of health systems; “in places where there is widespread poverty and overpopulation, it is likely that childhood malnutrition will serve as a sentinel to many other public health and personal health problems” (Douglass and McGadney-Douglass 2008:28).

## **2.1 MATERNAL AND CHILD HEALTH IN THE PACIFIC**

There are increasing rates of both communicable and non-communicable diseases in south Pacific countries, including Vanuatu (Gani 2009). The health and survival of children in developing countries is of particular concern across the globe, and the south Pacific is no exception. Gani argues that economic status has an important influence on child mortality, and this is demonstrated by higher mortality rates for children in poor countries (Gani 2009). Poor economic status has an influence on health, and we see a direct connection between economic status and health, nutrition, and ultimately child survival emerging in the Pacific and in Vanuatu. This is exacerbated by high fertility rates and an increasing population of young people who put an even greater strain on education and health systems of developing countries, which has been a trend for over twenty years (for older examples see Ahlburg 1989). Thus there are multiple socio-cultural, economic and environmental factors that influence the health systems of the developing countries of the Pacific.

In considering the status of maternal and child health and nutrition of a region, it is helpful to understand the implications of food insecurity, which is

defined as the inability of ‘individuals, households and communities to acquire appropriate and nutritious food on a regular and reliable basis, using socially acceptable means’, [and] is a serious problem threatening the lives of millions of

people worldwide. The end product of food insecurity is malnutrition (Renzaho 2005:798).

In examining under-five mortality, “nutritional deficiencies are thought to be one of the contributors...Malnutrition hits particularly hard at women and when undernourished, women give birth to underweight children” (Gani 2009:174-175). This is particularly damaging as children of low birth weight have a more difficult time surviving childhood illnesses and are more likely to get sick. Thus, access to food and understanding the biological and cultural implications of food insecurity are imperative to our understandings of malnutrition globally and in the Pacific region (Thaman 1995).

While malnutrition is a problem for infants, children and some young mothers, many Pacific island countries are seeing concurrent rises in “diseases of modernization” such as obesity, cardiovascular disease, and metabolic disease among individuals over the age of twenty-five (Capstick, et al. 2009). This is most common in areas of greater urbanization and development and is significant to any health study of Port Vila, Vanuatu, which simultaneously has the highest rates in the country for both malnourishment of children under the age of five *and* obesity of adults (Knowles 2007).

Other problems that plague Vanuatu and many other Pacific island countries are the scale and fragmentation of government prioritized health services (Lewis and Rapaport 1995). Because the health systems do not have the resources to provide all of the health and preventative care necessary, nor many of the services required for care and treatment of diseases and illnesses, we see the syndemic effects of multiple diseases compounding and exacerbating the health problems of individuals (Connell 2009; Lewis 1998). As Lewis and Rapaport (1995) note, “acute respiratory infections are common causes of morbidity and mortality in the Pacific, caused by numerous bacterial and viral infections, especially when respiratory defenses are

weakened by chilling, alcohol and malnutrition” (218). Health care and services for women is largely inadequate, which significantly contributes to health problems; for, there are “strong correlations...between maternal education and child survival, as well as maternal education and fertility” (Lewis and Rapaport 1995:220). This further illustrates the complex and integrated nature of problems of maternal and child health in the Pacific (Connell 2009; Lewis 1998).

Breastfeeding is known to be a critical component to child survival, particularly in developing countries; this is yet another area in which Pacific islands health systems are not prepared to provide maternal and child health services to the extent required. While breastfeeding is typically promoted to women who deliver in the hospital, rates of breastfeeding exclusively remain low, as seen in many other developing countries in the world (Nankunda, et al. 2010; Schluter, et al. 2006). Breastfeeding rates in the Pacific have been declining since 1990. This led Schluter et al. (2006) to suggest that understanding barriers to breastfeeding from a cultural context is crucial for successful public health interventions, therefore illustrating the importance of understanding disease and illness from both a biomedical and cultural perspective (Nankunda, et al. 2010).

## **2.2 MATERNAL AND CHILD HEALTH IN VANUATU**

The Vanuatu Ministry of Health recognizes that malnutrition is an ongoing problem that has been documented for at least 15 years, as it conducted small scale National Nutrition Surveys, including one in 1996 (Health 2004; Vanuatu 2008; Vanuatu 2004). Current data on malnutrition, however, were lacking, which was a major reason for conducting another survey in 2007 (Knowles 2007). The Ministry of Health hoped that this survey would provide sound



baseline data and suggestions that it could use to achieve the Millennium Development Goals and support initiatives “on strategies to prevent under-nutrition, including micronutrient deficiencies, among both women of reproductive age and pre-school children” (Knowles 2007:4). In this study, researchers were primarily looking at the nutrition of children under the age of five.

The nutrition survey conducted in 2007 of children under five in Vanuatu reveals that 15.9% were underweight (low weight for age), up from 12.1% in 1996 (Knowles 2007; Vanuatu 2008; Vanuatu 2004). In addition, 20% were stunted (low height for age) with only 0.1% increase from 1996, and 7% were wasted (low weight for height), up from 6% in 1996 (Knowles 2007; Vanuatu 2008; Vanuatu 2004). These numbers are based on the National Center for Health Statistics (NCHS) reference, which is an older reference standard, but is used here for comparison purposes as both sets of numbers were gathered using the same standard. Considering all of these numbers creates cause for concern, because they indicate that rates have all increased in the years between the surveys.

The 2007 survey presents the data in the new World Health Organization (WHO) standard, released in April 2006 (see Table 1 for comparison of all three sets of numbers). De Onis et al. (2006) explains that “the new standards adopt a fundamentally prescriptive approach designed to describe how all children should grow rather than merely describing how children grew at a specified time and place” (942). Working to expound upon the differences between the two measures, it becomes clear that “differences are particularly important during infancy, likely due to the inclusion of only breast-fed infants in the WHO sample and the predominance of formula-fed infants in the NCHS references” (de Onis, et al. 2006:944). Other differences include extensions at both ends of the weight for height curve to accommodate taller children

and to better assess stunted infants (de Onis, et al. 2006). The new WHO reference is applicable to all children despite the type of feeding they received as infants and has been standardized among a diverse population, “indicat[ing] that we should expect the same potential for growth in any country” (de Onis, et al. 2006:945). For purposes of comparison at this point it is better to use the NCHS reference as that is the reference used in the 1996 and 2007 studies. However, the 2007 study also gathered data based on the new WHO reference, so those can serve as an updated reference measure for future studies.

**Table 1. Comparison of nutritional figures for ni-Vanuatu children under five**

	1996 Nutrition Survey, NCHS Reference	2007 Nutrition Survey, NCHS Reference	2007 Nutrition Survey, WHO Reference
Underweight	12.1%	15.9%	>10%
Stunted	20%	20.1%; 6.8% with severe stunting	26.3%; 8.3% with severe stunting
Wasted	6%	6.5%	5.8%
Total Undernourished	38.1%	42.5%	> 42.1%
Overweight	N/A	2.3%	4.5%

Vanuatu’s percentages of stunted children are slightly better than global averages for developing countries, in which 27% are stunted; however, it has the same rate of underweight as the global average of 16%, and it has not reached the MDG targets. In addition, the rates in Vanuatu are higher than nearby countries such as the Solomon Islands and Tuvalu (United 2010; World 2010). Additionally, only 10% of infants in Vanuatu are breastfed exclusively for the first six months, which the WHO argues is essential to infant health (Vanuatu 2004).

The data garnered from the 2007 survey are framed in the context of global health standards and explain some of the long-term repercussions for malnutrition of women and children physically and cognitively, which illustrate the importance of the survey and of future

interventions to correct these public health problems. The assessors outline the reasons they believe that malnutrition is still a problem in Vanuatu and their recommendations for improvement. In reflecting on the findings, they write:

expert opinion is that this double burden of malnutrition often has common causes of: poverty; inequity; inadequate pre-natal, fetal and infant and young child nutrition followed by exposure to high-fat, energy dense micronutrient-poor foods and lack of physical activity as the child gets older. Eliminating these causes requires political and social action of which nutritional programmes can be only one aspect (Knowles 2007:46).

Vanuatu's problem with malnourishment is already a local concern. The Ministry of Health recognizes and acknowledges the multiple factors contributing to malnutrition problems in Vanuatu, which makes it an appropriate place for further examination of the problem of maternal and child health and nutrition in the Pacific.

Grace and Everad (2004) conducted a study looking at the perinatal mortality rates over a 19-year timespan from 1982 to 2001 at Vila Central Hospital, the primary hospital in the country. While the rates are for this hospital only and therefore not reflective of the whole country, it is likely that the perinatal mortality rates for the rest of the country are higher than the rates at the primary hospital for the country. Grace and Everad (2004) found that the average perinatal mortality rate was 27/1,000 and the small-for-gestational-age average was 45/1,000. This reflects perinatal mortality levels at least 30 years behind that of Australia. One crucial method for improving these rates is to direct public health programs toward improving nutrition and therefore the health of young women of childbearing age (Grace and Everad 2004). These recommendations parallel the results and recommendations of the National Nutrition Survey.

Dietary habits of young adults are also of concern (Knowles 2007; Li, et al. 2009; Phongsavan, et al. 2005; Renzaho 2005). In a survey of 13 and 15-year-old boys and girls in Vanuatu, researchers found that between 12% and 18% of respondents had at least one cola or

carbonated beverage daily (Phongsavan, et al. 2005). Even more significant however, between 14% and 21% of respondents reported eating canned mutton daily, and between 39% and 42% of respondents reported eating canned fish daily (Phongsavan, et al. 2005). These foods, particularly canned mutton, are high in fat and are not healthy food choices. The eating habits of children in this age group are important as it starts them on a pattern of food behavior and sets them on a track toward increasing adult obesity. This is of particular concern as many of these girls will start having children in the next five years, so their health as adolescents is also important in the context of their future reproductive roles (Knowles 2007). The data gathered here are of significant importance to our understanding of health and nutrition because they “provide evidence of dietary transitions among youth in these countries that are consistent with documented international trends of a nutrition shift away from traditional diets considered to be high in nutritional qualities to diets low in nutrients” (Phongsavan, et al. 2005:245).

Considerable data on the biomedical aspects of child health are publically available, and research on various biomedical causes for childhood malnutrition has been conducted. However, qualitative research on the significance of contributing social factors is lacking. In the 2007 Vanuatu Nutrition Survey, the assessors state, “it may be necessary to conduct...in-depth qualitative research to obtain a true understanding of how women make decisions regarding their infant’s nutrition and feeding and what may be needed to enact a change in any non-recommended behaviours” (Knowles 2007:43). It is evident that there is a real lack of qualitative research on the cultural factors that contribute to childhood malnutrition. This project was designed to address this need, gathering qualitative data on one of these contributing social factors: the influence of kin networks on infant and child feeding practice.

## 2.3 KIN NETWORKS

When considering malnutrition in the context of kin networks it becomes clear that malnutrition is much more than a lack of food and must be examined within a large social context. Engle (2002) examines infant feeding behaviors, patterns and styles, and places malnutrition in the large social context of family and caregiver behavior regarding feeding practice. Engle explains: “A common belief is that lack of food is the reason for malnutrition; however, it is only one contributing factor. Equally important are caring practices such as infant and young child feeding, and the family resources needed to provide that care” (2002:s109). Those include the social resources of kin networks.

Biological anthropological research also highlights this: “human kinship and family systems are likely to be anciently rooted in the behavioral ecology of sharing food, and further interdependencies evolved to include cooperative breeding, pair bonds, and other sociopolitical alliances” (Leonetti 2008:227). This research is tied to the concept in biocultural anthropology of alloparenting, or individuals other than the biological parents who provide for the child (Hrdy 2005). This theory proposes that our human ancestors were cooperative breeders and shared the responsibility for caring for children among many members of a kin network (Gibson and Mace 2005; Pashos and McBurney 2008).

There is evidence from across the literature that husbands and grandmothers have vast influence on the decision-making processes of young women (Aubel 2006; Aubel, et al. 2001; Douglass and McGadney-Douglass 2008; Satzinger, et al. 2009; Stansbury, et al. 2000). While family members may not always initially promote health behaviors consistent with those promoted by the WHO, educational campaigns that include kin can change opinions and have a major effect on behavior. For example, when interventions included nutrition education for

grandmothers, Aubel et al. (2001) found vast changes in the advice grandmothers provided regarding breastfeeding, which was coupled with changes in younger women's behaviors in feeding their infants. Including perspectives of grandmothers and other kin is critical to research that seeks to understand the social factors that contribute to mothers' decision-making processes regarding child-feeding practices.

There are numerous social factors that are important to consider here, including "circumstances surrounding caregivers' ability to provide adequate complementary foods include work demands, the caregiver's own health status, social support from others, and availability of resources" (Fouts and Brookshire 2009:286). All of these factors can be influenced by any number of different members of a kin network, including fathers, aunts and uncles, and grandparents in addition to mothers. In fact, all the members of a mothers' social network have the potential to have a positive impact on child nutrition when beneficial knowledge and resources are shared (Moestue, et al. 2007). Men play an important role in the distribution of family resources; "because men mediate women's access to economic resources in many parts of the world, women's nutritional status, especially during pregnancy, may depend heavily on male partners and relatives" (Dudgeon and Inhorn 2004:1387). This influence can extend to children through the type, amount and quality of food they receive once they are born.

### **2.3.1 Grandmothers**

Grandmothers represent a particularly important member of many families, members who are often overlooked in maternal and child health programs. Grandmothers can be influential, and:

one specific and decisive facet of non-western cultures that is rarely even dealt with in discussion on culture and development is the central role played by elders in socializing younger generations, passing on indigenous knowledge and cultural values, and ensuring the stability and survival of their societies (Aubel 2010:42).

In addition it has been demonstrated that grandmothers play a role in shaping young children's behaviors and consumption patterns (Speirs, et al. 2009).

Despite these facts, most maternal and child health (MCH) programs are targeted at mothers and young women of reproductive age. Challenging this pattern, Aubel et al. (2001) developed a nutrition education program that targeted grandmothers. Through this research they found that grandmothers were central to family decision-making for all maternal and child related practices, and they regularly cared for and were directly responsible for feeding children. Additionally, grandmothers frequently advised young women and men on a variety of health matters, including maintaining good health, and treating and preventing illness (Aubel, et al. 2001). Their study provides evidence of the effectiveness of grandmother education programs, as they were able to demonstrate "...significant increases in grandmothers' knowledge of the priority nutrition concepts, dramatic changes in the advice they give to pregnant and breastfeeding women, and observable changes in younger women's nutritional practices based on the grandmothers' updated advice" (Aubel, et al. 2001:70).

In some instances, researchers have found that integrating educational programs for mothers and grandmothers can be difficult and sometimes socially sensitive. Satinger, Kerr and Shumba (2009) conducted research in the rural areas of northern Malawi where they documented that gender and inter-generational conflict were impacting nutritional status in children. The researchers implemented a new type of group discussion research program that they call Agriculture Nutrition Discussion Groups (ANDGs), which were designed to promote problem-solving conversations around issues of child nutrition. Analyzing the results of 46 interviews and

three focus groups with small farmers on the topic of childhood nutrition, the researchers conclude that they have

evidence of a novel way to engage different generations and genders in discussions of sensitive topics that affect child nutritional outcomes, such as early introduction of foods to babies, and the household division of labor. Facilitating different generations' and genders' exchange of knowledge and experiences about agricultural, childcare, and feeding practices proved to be an effective way to initiate idea exchange about sensitive issues in rural communities and was supported by all those involved (Satzinger, et al. 2009:380).

The ANDGs were formed to balance gender and generational gaps within the group, and each group had a member of the community serve as the facilitator, which helped to alleviate some of the conflict. Researchers found that using ANDGs improved familial relationships, particularly between grandmothers and mothers (Satzinger, et al. 2009).

In another study that used family or group interviews in Accra, Ghana, researchers found that grandmothers played a critical role in survival of children with kwashiorkor, an extreme type of protein malnourishment, which has a global fatality rate of nearly 80% (Douglass and McGadney-Douglass 2008). For most children suffering from kwashiorkor, treatment from a physician in a clinic or hospital is required for survival. In this region, the grandmothers are regarded to be better educated than mothers on current health and nutrition practices and are encouraged to share their advice with mothers. The authors commented that their most significant finding was that grandmothers and older aunts play a critical role in encouraging young mothers to seek treatment for their sick children. Grandmothers were most likely to identify the child as seriously ill rather than just slow or lethargic, and they told young mothers that the child needed medical care to ensure recovery (Douglass and McGadney-Douglass 2008). In this study researchers found that “intervention with insight and information, collective decision making, and the imposition of other family members into the childrearing process were



always involved in the cases [where the child] survived” (Douglass and McGadney-Douglass 2008:40). This study is unique in its use of family group interviews on the topic of childhood malnutrition, which the authors claim yielded data that they would not have garnered in any other way. While this may be true, it would be beneficial to also conduct some individual interviews with the family members in order to crosscheck information and see if anything differed due to the group dynamic.

Fouts and Brookshire (2009) studied Aka forgers in the Congo, observing and recording what foods were fed to children over several days. Results were enlightening, as Fouts and Brookshire write:

it is striking that Aka allomothers [individuals other than the mother who provide caregiving] together gave food to children more frequently than Aka mothers. These results underscore the need for public health education programs to target extended kin and communities in addition to mothers, as children's health may be affected by far more individuals than mothers alone (Fouts and Brookshire 2009:290).

So here the mother was the individual who fed and tended to the child the most, but with food given by all other caregivers, the total exceeded what the mother provided. This is a significant finding and illustrates that the food provided by kin can be an important resource.

Hadley (2004) conducted a cross-sectional survey and longitudinal study of children's growth patterns among a horticultural population in Tanzania. A questionnaire was administered on maternal attitudes toward their kin, and Hadley shows that in this case, kin have a positive effect on health. However the real effects kin have on under nutrition are questionable as those seen in this study are small. The data from this study

suggest that, for the majority of mothers, having kin living in the study area is associated with increasing numbers of children surviving to age five, having greater relative weight, and having greater weight gain. Further, the data from this cross-sectional study suggested that this effect was modified by household wealth:

wealthy households benefit the least from kin and poor households the most (Hadley 2004:388).

However, Hadley was not able to demonstrate any significant effects of the presence of grandmothers in particular, and in this cultural setting, he found ethnographic evidence that suggested grandmothers play a relatively small role in child care. Hadley concludes by calling for future studies to utilize retrospective data so that researchers can begin to determine the impacts of kin on food behavior patterns over the course of an individual's lifetime (Hadley 2004).

Ultimately the literature illustrates conflicting reports on the influence of kin on child health and mortality. There are examples where kin and grandmothers can have a negative impact on the health and survival of children (Sharma and Kanani 2006). Sear (2008) conducted research using a single-round demographic survey on the influence of kin on child survival in rural Malawi. Data collected in this study revealed that situations can arise when grandmothers have a detrimental impact on child health, and in this case the presence of grandmothers actually increased mortality rates of children (Sear 2008). Sear concludes that

the presence of kin will not always be beneficial. Given that kin who share the same resource base may be in competition for these resources, the presence of certain relatives may do more harm than good to child survival rates....this study found that resource ownership matters too: patterns of help or harm from kin are different in households where men own resources compared with those in which women own resources (Sear 2008:290-1).

This research illustrates that considering factors such as whether or not a society is matrilineal or patrilineal and other factors related to social structure and distribution of resources is important to understanding the impact that kin can have on child health.

### 2.3.2 Gaps in the Literature

The literature on the influence of kin networks and grandmothers in particular presents data that are largely quantitative. Much of the research involved whether or not the *presence* of kin has an effect on child mortality, survival past age five, or if kin have an impact on child malnutrition in terms of growth stunting or wasting. This has proven extremely useful in highlighting that kin do in fact play a significant role in the health and nutrition of children. It does not provide a lot of evidence on *why* kin might have this effect, which illustrates the need for more research.

More research needs to be conducted in order to determine *why* grandmothers seem to be beneficial in some areas and have a negative impact on health status in other regions. It is likely that grandmothers are unaware that some advice has a negative effect on the growth and development of children. Grandmothers should still be viewed as an asset because "while certain harmful practices are promoted by grandmothers in various cultures, given the wide-ranging role they play and their influence and intrinsic commitment to promoting the well-being of women and children, they should be viewed as key actors in development programs" (Aubel 2006:2). Recognizing that grandmothers are influential in maternal and child health and nutrition is an important step; however, in order to create truly effective public health interventions, it is important to understand why and how grandmothers and other kin affect child health status. This gap in our understanding of the impact of kin networks led me to the overarching research question for this project: what roles do kin play in mothers' decision-making processes regarding food choice for their children?

### **3.0 RESEARCH METHODS**

The fieldwork that forms the foundation for this project was conducted in the summer of 2010 over the period of one month from May to June. The research was based in the capital city of Port Vila, Vanuatu, as this area has the highest rates of under nutrition in the country. Participant observation was conducted throughout the duration of the project. Interviews began at the end of the first week of the project and continued for the following three weeks.

#### **3.1 DATA COLLECTION STRATEGY**

This project was approved by the University of Pittsburgh's Institutional Review Board; the Vanuatu National Cultural Council, the group that approves all cultural research conducted in the country; and the Vanuatu Ministry of Health, all prior to arriving in the country. Approval from the National Cultural Council and the Ministry of Health was critical to this work, as they connect researchers with staff and volunteers at the Vanuatu Cultural Centre, who then introduce them to key members of the community. This process was critical as it created a wide network of contacts and supported this study through legitimate entrée into the community.

This project began through the establishment of contacts with several organizations, including the Vanuatu Cultural Centre and Museum; the Ministry of Health; Vila Central Hospital, the only public hospital on the island of Efate; the National Library, which houses

longitudinal studies on childhood health and nutrition including children's heights and weights, and rates of stunting and wasting; and the grassroots organization the Vanuatu Young People's Project. This provided an opportunity for the researcher to meet many young women living in and around Port Vila, as well as a number of public health practitioners working on maternal and child health and nutrition including nurses, midwives, nutrition educators and a number of United States Peace Corps volunteers who are working on nutrition education interventions.

### **3.1.1 Interviews**

These contacts served as a network of potential informants. Many of these individuals introduced the researcher to other community groups, neighborhoods, friends and family who could also serve as potential study participants. Due to the short time frame available to conduct this investigation, participants were gathered through a purposive chain sample (Bernard 2006). Each interviewee offered to introduce the researcher to additional contacts and potential participants. These offers ensured that there were a number of different people to approach about being interviewed.

Data were primarily collected through the use of in-depth interviews that were designed to provide context for understanding an individual's experiences and behaviors regarding infant and child feeding from birth to age five. This mode of inquiry allowed women to discuss work experiences, the types of food they are able to purchase, and the influence of various other friends and family on their food choices and beliefs. Objectives specifically related to the influence of kin networks included: 1) identifying individuals who proved influential to mothers' decision-making processes, 2) appraising the relative influence of each of those individuals and

determining whose advice is most frequently followed and/or disregarded, and 3) examining the content of the advice that is offered from this range of individuals.

The investigator interviewed participants from two primary groups: 1) individuals who worked in public health and nutrition, and 2) mothers who interacted with or had some understanding or experience with the medical system. For the public health practitioner group, people were included if they were *currently* working on a maternal and child health related project in some capacity. For the group of mothers, women were selected who had at least one child under the age of five years old and who had some experience with the public health sector. Involvement could be obtained through any number of activities, including attending a nutrition education program, giving birth at a hospital, or taking a child into a clinic or hospital for immunizations, well-baby check-ups, or due to a child's illness. Interaction with the medical system was important as this project sought evidence of how health information is received, interpreted, and whether or not this information comes into conflict with advice from non-health care professionals.

Attempts were made to conduct interviews with mothers of different ages, with different numbers of children, income, and levels of education. However, most participants were employed in some capacity so they tended to range from middle class to upper-middle class. Another criterion for inclusion was the ability for all participants to speak some degree of English. Vanuatu has three national languages, English, French, and an English-based creole language called Bislama. Bislama is widely spoken as the most common language in Port Vila; however, many people know some degree of English. During previous time spent in Vanuatu and throughout the course of this project, the investigator engaged in extensive Bislama language lessons. However, because she is not currently fluent in Bislama, the interviews were conducted

primarily in English with some Bislama. This meant that most participants had some degree of education since most ni-Vanuatu learn English in school.

A total of 23 individuals were interviewed for this project; three individuals engaged in follow-up consultations to clarify initial responses, and in two cases because they wanted to meet again after having some time to think about this research and offer additional information. The breakdown of all interview categories is listed in Table 2.

**Table 2: Number of People Interviewed by Category**

	Number of People Interviewed in Category
Mothers	14
Fathers/Uncles	2
Public Health Practitioners	10
Mothers AND Public Health Practitioners	4
Engaged in a Repeat Interview	3
Total Individuals Interviewed	23

Additionally, four of the interviews were split into two parts, because these individuals wanted to share their perspectives as both public health practitioners and as parents. Fourteen women were interviewed about their experiences as mothers, and two men were interviewed about their experiences as fathers and uncles in the context of feeding and raising children. Ten public health practitioners were interviewed about their experiences working with maternal and child health and nutrition programs. While interviews in this category took place with nurses, doctors, nutrition educators, and public health officials, they will not be differentiated in this discussion and will simply be referred to as public health practitioners in order to help maintain anonymity.

Most participants lived in Port Vila, but those who lived in the peri-urban areas outside of the city were also interviewed. In addition, one woman from rural Efate was interviewed to help gather information on how her experiences and access to foods varied from those women living closer to the city and also to determine if public health educational information was being

offered to women outside of the primary clinics in an area immediately surrounding the city. Interviews were held at a variety of locations chosen by the interviewee. Interviews with public health practitioners were primarily performed at their place of work in a private office or conference room. Interviews with mothers were implemented largely in coffee shops, restaurants, parks, or in the meeting rooms of the Vanuatu Cultural Centre. A few of the interviews with mothers were carried out at the woman's place of work in a private office or conference room. The modal interview length was approximately one hour; however, some interviews lasted an hour and a half to two hours.

The researcher took extensive notes during all of the interviews. Three interviews were also recorded on a digital audio recorder. Many people were leery of the digital audio recorder, and unless the participant had previous experience with a recorder or had met with the researcher several different times and had a more established relationship, interviewing without the recorder was preferred.

### **3.1.2 Participant Observation**

Participant observation was employed to observe women and public health practitioners as they carry out the tasks of daily life (DeWalt and DeWalt 2011). Some participant observation was conducted in public areas of Vila Central Hospital, where women went to deliver their children and also where they took babies and young children for immunizations and check-ups. There are frequently long lines at these places, which give women an opportunity to congregate in groups and visit. In addition, participant observation was conducted at Vila Central Market where most of the local island foods are sold, at grocery stores, and the Chinese shops in town that sell some foodstuffs. Participant observation was also conducted at parks and



restaurants where people were eating with their families. Due to the short time frame of this project, limited participant observation was conducted during mealtimes in people's homes.

### **3.2 DATA ANALYSIS STRATEGY**

Data analysis, important to reflexive anthropology and ethnography, was ongoing throughout this field research. However, most of the critical analysis was done after completion of the project. Throughout the project, the examiner collected extensive field notes. In addition, written notes were taken during all interviews, and in some cases digital recordings of interviews were available. The investigator prepared research memos after interviews were conducted to note reflections and themes that were emerging during the course of the research. The investigator gathered numerous documents from a number of different sources throughout the project. Materials included brochures, posters, fliers and documents used in nutrition education programs, as well as materials used during the leadership training provided to nutrition educators. In almost every instance when a participant had a document used in nutrition education, it was offered to the research to either look over or to keep. All of this material proved helpful to this research; thus the researcher compiled and analyzed this full range of data. Transcriptions were made of the portions of the digital recordings deemed most relevant to this project. For example, all direct discussion of kin networks were transcribed so they could be coded in greater detail and quotes could be mined from this data. Digital recording, written notes, memos, nutrition education materials, and field notes were all analyzed for this project. After these materials were compiled, the researcher completed thematic coding of all documents.

## **4.0 RESEARCH RESULTS**

### **4.1 CHANGING FOOD PATTERNS**

This research revealed several shifts in the local economy and social structure, which have an impact on changing food practices and patterns of behavior. First, there has been an influx of people moving from rural Efate and other islands into Port Vila. This is largely due to the belief that there are opportunities for paid employment. However, upon arrival many people find that there are not enough jobs for all of those who seek them, so rates of unemployment remain high. In addition as people move into the city, they often live with friends or relatives, or in apartments or houses on very small plots of land. As the population of Port Vila continues to grow, there is a decreasing amount of land available, which has an impact on gardening and individuals' abilities to grow food for themselves. One participant explained, "A lot of people are renting, they don't have land, so they don't have anywhere to grow food." This results in people purchasing foods from either the market, where local foods are sold, or from the store, where primarily imported foods are sold. Most people purchase imported food from the store over local foods from the market. Describing the local foods in the market, one participant said, "Food in the market is too expensive. Twenty-five kilos of rice lasts longer than local food. Rice stays a long time without going bad, but local food goes bad quickly."

Another shift in the social structure that influences food patterns is an increase in the number of women who hold jobs. Birthrates remain high despite women's increased employment. Employed women are legally entitled to paid maternity leave of three months. However, many women are not able to access this as some employers are unwilling to provide it, and enforcement of the law is poor. In some cases, women try to hide their pregnancies because they fear they will be fired as soon as their employer learns of the pregnancy. This is a particular problem for women who work at the Chinese shops, as women employed in these stores reported having the most difficulty with their employers violating labor laws. Most of the participants involved in this study had stories to share about women they knew or had heard of who were fired from these stores very early in their pregnancies. This impacts the amount of money that women have to support their growing families and influences the types and quality of food they are able to afford.

Public health practitioners view breastfeeding as extremely important. Vila Central Hospital was certified by the WHO/UNICEF Baby-friendly Hospital Initiative, and the practices required for that certification are largely still in place despite the fact that they no longer have the certification. WHO/UNICEF encourage all hospital staff to promote the following ten steps designed to increase breastfeeding rates: 1) establish a written breastfeeding policy that is shared with staff, 2) offer staff training on breastfeeding policy implementation, 3) educate pregnant women on benefits of breastfeeding, 4) aid mothers in breastfeeding infants within a half-hour of birth, 5) demonstrate breastfeeding to new mothers and provide education on maintaining lactation if a mother is separated from her child, 6) provide infants with breastmilk only unless additional supplements are medically required, 7) allow mothers to stay in the same room as their infants 24 hours a day to facilitate breastfeeding, 8) encourage mothers to breastfeed on demand

of their child, 9) do not provide artificial pacifiers or teats to infants who are breastfeeding, and 10) help to establish breastfeeding support groups and encourage mothers to join upon hospital discharge (World Health Organization 2009). In addition to promoting the ten steps outlined above, a hospital needs to undergo the full process of becoming certified as a Baby-friendly Hospital, which:

starts with self-appraisal by the facility. This initial self-assessment includes an analysis of the practices that encourage or hinder breastfeeding, and then helps identify the actions that will help to make the necessary changes. It follows the accepted triple-A sequence (Assessment, Analysis and Action), which characterises much of UNICEF Programme development. After a facility is satisfied that it meets a high standard, this achievement is confirmed objectively by an external assessment of whether the facility has achieved, or nearly achieved, the “Global Criteria” for BFHI and thus can be awarded the Global Baby-friendly Hospital designation and plaque (World Health Organization 2009:4).

Public health officials at Vila Central Hospital are currently working to renew their certification which lapsed due to an inability to pay fees associated with the renewal process.

Recently, a new law was enacted to permit new mothers ‘breaks’ to go home from work and breastfeed their infants. Mothers are entitled to two breaks, one in the morning and one in the afternoon. However, the only mothers that participated in this research who were able to utilize this time off were employed by the government. One participant explained:

Women have been told that they should expect to be able to go home for half an hour and breastfeed in the morning and half an hour in the afternoon. But then you’ve got other issues of, you know, increase in the bus fares. So then one hundred vatu to one hundred and fifty vatu. They both kind of happened around the same time. And so that’s kind of set people back. Even with the one hundred vatu that was expensive enough.

The current bus fare of 150vt (approximately US \$1.50) covers transportation only one way, so it would cost women 600vt if they went home to breastfeed for both of the allotted breaks, and an additional 300vt for getting to work in the morning and leaving at the end of the day. This is cost prohibitive for many women.

In addition the new law was not well publicized, and the details were largely unclear to women in this study. Generally, women thought that very few employers knew about this law as well, and they felt very uncomfortable about bringing it up. Many women were concerned that if they asked about having time off to go home and breastfeed they would be fired, linking this to stories they had heard about women being fired for being pregnant. One mother reflected on the situation, stating:

In a lot of employment areas it's seen that you're not performing well if you're expected to be going home for breastfeeding. So women are made to feel bad, I guess, about doing it. And they're being penalized for it. The enforcement of it [the law] is very lacking. You know they've ticked boxes to say yes, now we've passed this law but..."[she shrugs].

## **4.2 NUTRITION EDUCATION**

The primary nutrition education program in Port Vila, Vanuatu is a program called *tri kaen kakae*, or three kinds of foods. This program promotes good nutrition, and this has two meanings. First, there are three food groups: those that: 1) provide energy (primarily carbohydrates and high starch foods such as potatoes, bananas, bread and rice), 2) prevent sickness (primarily leafy green vegetables and fruits like papaya, pineapple, mango, and coconut), and 3) facilitate growth (primarily meats, beans, nuts and milk). Mothers are also encouraged to feed their children three meals a day, *and* three kinds of food at each meal, ideally one food from each of the three food groups.

The *tri kaen kakae* program is promoted through a number of different outlets. Posters are displayed in the hospitals, clinics, and other public health buildings that advertise this program. The program is designed to provide mothers with information when they are already

coming to the hospital or clinic for another reason, for example when they are coming to the clinic for antenatal and post-natal check-ups, well-baby check-ups, and immunizations. The program was designed this way so that information is repeated to mothers in a number of different settings and so they can reach a large number of mothers. Nurses are most commonly charged with administering the *tri kaen kakae* program and also with providing information on breastfeeding, complementary feeding and young child feeding. Mothers also receive information about diarrheal diseases and how to prevent them.

The feeding schedule that is recommended by public health officials is exclusive breastfeeding for the first six months of life. This should be followed by the introduction of soft foods like mashed banana, papaya and sweet potatoes, while breastfeeding is continued. Once the child reaches 12 months in age, mothers are told that they can start feeding the baby the same food that is fed to the rest of the family. However, mothers should make sure that the baby gets some fresh fruit or fresh fruit juice one or two times every day. In addition, breastfeeding should continue until the child is two years old. All of this health and nutrition information is targeted at the mothers only—then they go home.

### **4.3 INFLUENCE OF KIN NETWORKS**

#### **4.3.1 The Influence of Fathers and Male Heads of Households**

When asked about how they made choices regarding food for their families, women always mentioned members of their kin networks. Women provided stories and examples about both supportive and unsupportive advice and behaviors offered by their kin regarding child

nutrition and feeding practice. Fathers and male heads of households were frequently cited as having an influence in child nutrition, but they were not regularly seen as having a lot of knowledge on the topic. One mother explained,

Nutrition, family, pikinini, [children] it's the mother's duty. But if the fathers help in the interest that they want to see their kids eating properly, then that helps the mother too. Like I've noticed in my family when Tom says no, the kids are not eating properly, you'd better look at what they have and the nutrition they're getting too. That helps the mother feel oh yes, I have to do this...If the fathers play that very important role too inside [the family], you know it will help the mothers a lot.

Thus a potential positive role for fathers is seen as encouraging mothers to make sure that the children receive good nutritious foods, but they do not tend to play a large role in determining what those foods should be.

While this research suggests that fathers are less likely than mothers or grandmothers to be responsible for feeding children, they do play important social roles in supporting mothers. In addition, many men control household finances, which impacts the financial resources available to the mother to purchase nutritious foods. One participant explained:

So, you know mothers are being educated...but the fathers are not being part of that education. So then there's a need to involve fathers a lot more....Because a lot of the times in homes, it's the man that's working. And if he doesn't know that [nutrition information] and he doesn't support that, and he's using the money to drink kava or do whatever. Then the woman is left scratching for whatever she can...All the fathers are expecting their children to be bright intelligent children...and they need to know that nutrition is a very important part of their child.

A public health official who participated in this research explained this further, stating, "If the male is the head of the household, then how do they distribute the money? Do men give a fair share of money to women to care for the family and buy nutritious foods?" Thus there is a link between father's knowledge and his support of mothers purchasing nutritious foods. Fathers are

influential in the finances of the family and can determine whether mothers have access to money to purchase local, healthy foods for their families. Mothers often must negotiate the use of money for nutritious food with fathers, and sometimes that can be a difficult balance.

One mother discussed the lack of nutrition education for men, stating, “I think that’s a big issue in terms of education. So, you know, mothers are being educated with the limited education that they’re being given...but the fathers are not being part of that education.” Male participants in this study also complained about men not knowing very much about nutrition. One male participant lamented, “Everyone knows *tri kaen kakai ol taem*, [eat three kinds of food at every meal] but people don’t know about jellies [sugar sprinkles]. People get “fever” like with mangos. In mango season we eat them all the time, and kids put the jellies on them.” Here the participant is explaining that when fruits like mangos are in season, they are eaten a lot, in some cases to a “fever” or to a point where people are sick and tired of eating them. Often kids ask for jellies or colored sugar sprinkles to put on their mangos. This participant continues, “We are not informed of products like jellies. We put the jellies on mango but I don’t know what’s inside. Maybe it’s bad for your body, but I don’t know.” Other participants indicated that men and other kin members were the source of a lot of junk food that children received. However, most people in this study assumed that men did not know what was good food for children and what was bad food for children. One participant explained, “Uncles and aunts give babies lollies [suckers] to make them happy but they don’t know that it’s bad for the baby.”

#### **4.3.2 The Influence of Grandmothers**

Participants in this study overwhelmingly reported that grandmothers were the most influential people in terms of nutrition education, prompting women to feed or not feed their



children particular foods. Moreover, mothers were most likely to follow the advice of grandmothers than advice from any other group. In some cases this was because the mother did not feel she could go against the advice of the grandmother, but in many cases it was because the grandmother was considered an expert. Many participants also reported that advice from grandmothers conflicted with advice from public health practitioners. One participant explained:

There's a lot of myths that need to be broken. You know, as much as I see a lot of value in family systems being strong...because then for a woman when you marry into a family, then you immediately become attached to your husband's mother, and she will pass on information that she knows about food and breastfeeding. But some of the times that information is not correct. You know, like they've been telling me, "Stop breastfeeding! Look at him!" Because my son is not, he's not a chubby baby, he's small. But I tell you he eats! He eats like a horse and he breastfeeds all the time. But all my family and my aunties are saying, "Stop breastfeeding! You keep breastfeeding and he won't stay skinny!" But I know that breastfeeding is good for him. So then I still keep on doing it, but there's a lot of myths out there about what you should give them. And so when I give them egg...they say they [babies] can't have egg and they can't have fish. And that's the older women. And if that's where mothers are getting their information from, then they're getting a lot of information that's not helpful for the child, for the development of the child.

This was a common response—that there were myths, particularly about breastfeeding, that needed to be dispelled. Participants from both groups, mothers and public health practitioners, explained instances where grandmothers gave mothers advice that was contrary to that provided in nutrition education programs. One participant reported, "They're talking out of experience really," and it was assumed that grandmothers were providing advice that they thought was beneficial. It is believed by many participants in this study that this advice was based on grandmothers' personal experiences as mothers, and the experiences they had with nutrition education when they had children.

Another participant explains that the advice she receives is very outdated, by relating a conversation she had with her mother-in law:

This is my husband's mother: "Oh when I had my baby, there was this French mission nurse, and she was the best!" And then she spouts information from the French nurse, and you know, a lot of it is very outdated information. And as much as I said, "Oh thank you!" for that information, but I wasn't going to follow it because a lot of it is very much outdated...That's why you don't live with them (she laughs).

While many women told stories about outdated advice they received from grandmothers, what is *not* common about this story is the mother's ability to go *against* the advice of the grandmother. This particular response was from a woman who was well-educated and had a well-paying job, allowing her to afford to live with her nuclear family independently from her extended kin. This provided her with the ability to say one thing but in practice do the opposite. Most of the women in this study live with or next door to extended family members, and when the grandmother tells the mother to stop breastfeeding or to feed the baby lemon tea, the mother often has no choice because she is watched until she puts that advice into practice.

Despite examples of grandmothers telling women to stop breastfeeding due to a belief that something bad has happened to the milk and could make the baby sick, most grandmothers support breastfeeding. Most participants reported that breastfeeding is generally preferred, and women should start with that and stop only when they encounter a problem with their child becoming sick. One mother explicates:

On the whole I think breastfeeding is very much encouraged. You know, like the husband's family would look at you really badly if you didn't breastfeed. They would scold you and tell you, "You have to keep breastfeeding" and then you have to go back and breastfeed until they're satisfied that you're breastfeeding enough. On the whole I think it's generally encouraged.

Formula milk is very expensive, with the most common brand, SMA, costing about 2500vt (US \$25) per 900g can. Generally, using formula when a mother's breast milk is believed to be 'good' is considered wasteful by other family members. Describing how mothers who do not breastfeed are viewed, one participant states, "You're being lazy if you don't breastfeed. You're

being expensive because you want to buy this formula, and it's fancy." Some participants reported this as a type of social pressure to breastfeed.

#### **4.3.3 Influence of Other Kin**

In addition to the influence of grandmothers, many participants in this study talked about other family and friends on whom they relied for advice. One woman explained, "My sisters would share books, and would come together and talk. We'd talk about what we're doing in our homes. And that really helped me; that sort of helped me to see what I could do for my child." Women who had only one child were most likely to mention discussions with other kin as beneficial sources of information. Another participant stated, "A couple of my friends had babies a couple years before me, and they were telling me what to expect. It was more said in jest, but they're also passing on information." Women who reported getting information from friends and sisters reported this advice as a positive experience and were appreciative of these networks they had available to help them as new mothers.

#### **4.3.4 Public Health Practitioners Reflections on the Influence of Kin**

Many public health workers reported that they had to deal with the *kastom* belief that when a woman is pregnant she cannot breastfeed because the milk is 'bad' or 'sour'. One woman explained this belief: "There's also that thing where they say, you know, that you might be pregnant again....That's why the child is going skinny like that if she is breastfeeding while pregnant." Often, when a baby seems too skinny or small, participants reported that this was blamed on the quality of the mother's breast milk. Some participants reported that if a baby got a

diarrheal infection that was also believed to be a sign of bad breast milk. Public health practitioners interviewed for this study reported that they were concerned about these beliefs and were working to tell mothers that this was not true. Again, these efforts to dispel these myths were only directed at mothers.

Public health practitioners were aware of and concerned about the possibility of women receiving mixed health and nutrition education messages due to the fact that kin were providing advice that was different from that provided by professionals. When questioned about where specifically the mixed messages could come from, one practitioner suggested grandmothers and the older generations, stating, “Grandmothers got the old research. First it was breastfeed exclusively for three months, then four months, and now six months. So women were told different things [based on the time they were having children]”. One public health practitioner reported that women were told to breastfeed exclusively for the first four months of life until six or seven years ago, when the message was changed to the first six months of life.

Missionaries were also cited as providing bad information to the older generations. When asked about the influence of missionaries, one nutrition educator did not hesitate and replied, “All nurses were nuns in colonial times. They told mothers to feed [their babies] sweetened condensed milk, or use water with white sugar added to it. And they told them to do this after [the babies] were only two days old.” When questioned on the extent to which this was practiced and the rationale behind these recommendations, the practitioner responded, “I don’t know why they were doing this.” Because Vanuatu was a jointly administered British and French colony until 1980, many grandmothers have experience with the colonial nurses and nuns. The problem of conflicting health education messages is widely recognized as a problem by both mothers and public health practitioners.

## 5.0 DISCUSSION

### 5.1 ANALYSIS OF NUTRITION EDUCATION PROGRAMS

The message of *tri kaen kakae* has reached a lot of the population of Port Vila. Every mother interviewed had heard of this nutrition education campaign and referenced it on her own, without any prompting or questioning from the researcher. However, there was confusion about what *tri kaen kakae* actually means. None of the mothers in this study were able to describe all of the components of the campaign. Some women thought that they needed to give just three kinds of food during the day but not necessarily three separate meals. Women explained that they should feed their children three meals a day but described meals as consisting of one food, for example, serving papaya for lunch. Some women explained that it is good to have three kinds of food, but that it does not matter when or how regularly children received these three kinds of food. Some women in this category suggested that serving two meals one day, and two different meals the following day would satisfy this recommendation. This study highlights that women have received the *tri kaen kakae* nutrition education message, but they do not understand all of the parts of the program.

All participants in this study were asked if they thought Vanuatu had a problem with malnutrition. Overwhelmingly, participants responded yes. When further asked what they thought caused malnutrition there was a range of responses. A common response from mothers

was feeling that most mothers do not have time to regularly cook healthy meals. One mother explains her situation as parallel to many other mothers' concerns, stating, "Mothers know that they need to give all the three main foods. They've got all that around them, and I think they're probably aware, but it's just not having the time to do it. And they don't see the importance of it, what this [program's advice] is giving to the child...As long as they're full that's fine." No participants in this study reported receiving any nutrition education materials on feeding a family quickly and efficiently.

Related to the problem of not having enough time to cook is the problem of not knowing how to easily prepare healthy foods. Locally grown island food is promoted as the ideal healthy choice. Yet, traditional methods for cooking this food require significant time. When women are working, they feel they do not have the time to prepare local island food. Describing this problem, one participant said:

Another thing is to educate our mothers on how to cook food. We have our ways to do it [referring to *kastom* cooking practices] but we've sort of lost it along the way... And consider the timing. If you can prepare nice healthy food, but in a short time. That's very important, and I think that's what we're looking for, and the [other] mothers are looking for these days.

Instead of information on food groups, women reported that they wanted information on how to cook and prepare healthy meals easily and quickly. Two public health practitioners who participated in this research explained that there was a cooking program at one point to teach women how to cook. But this program was not regularly offered. None of the mothers who participated in this research were aware of any nutrition education programs that taught women to cook healthy foods and to do this efficiently.

Another problem with the *tri kaen kakae* program that became evident throughout this study is that most of the foods included are local, healthy foods—there is no explanation of fats

or sugars, which left knowledge gaps about how fat and sugar should be viewed in the context of total nutrition. Kids consume twisties (similar to Cheetos), lollies (suckers), and sugary candy foods whenever they can. A single serving bag of twisties is fairly inexpensive and does not require any preparation. This makes it very convenient, unlike the local foods that they are told to eat in the *tri kaen kakae* program. The researcher observed many children eating a bag of twisties as a snack or for breakfast or lunch; frequently the bag of twisties was the only component to the meal. When asked about eating twisties and lollies, numerous participants stated that they enjoyed them but did not connect them to good or bad food habits. The most frequent response was, “I don’t know what’s in that.”

Among participants in this study, there are numerous misconceptions regarding the consumption of junk food. Commonly, food was placed into two categories: local island food that was generally fresh and healthy, and food from the store, which could be healthy but generally was high in salt and fat. Many participants did not know where fats and sugars fit into the *tri kaen kakae* program. None of the mothers spoke about eating fats and sugars in moderation or monitoring and limiting the intake of fatty, sugary foods, and when asked about this, participants generally expressed indifference, or stated they did not know. Including junk food as a special treat, or a food that could be enjoyed but not as a meal, could greatly benefit the *tri kaen kakae* program. Ni-Vanuatu are eating these foods regularly, and fats and sugars should not be omitted from the discussion of healthy food choices.

Breastfeeding educational campaigns have been very successful among participants in this study. Every participant explained that babies should be breastfeed exclusively for the first six months, and that this should continue for the first two years of the child’s life. While many women initially responded that they followed these recommendations, follow-up questions later

in the interview revealed that almost all the women fed their children some sort of other food before the child was six months old. Frequently, this was lemon tea, papaya juice, infant formula milk, and sometimes also consisted of other mashed up fruits or powdered milk such as Anchor milk. Some mothers reported knowing friends who used Anchor milk instead of infant formula milk because it is significantly cheaper. These women knew this was an unhealthy practice but also sympathized with women who were unable to afford formula milk. Many women explained that they preferred breastfeeding their own children because they would have been unable to afford formula milk even if they wanted to use it. Breastfeeding was generally viewed as favorable, and the most common reason for women to cease breastfeeding was a return to work.

Public health officials recognize that the laws regarding breastfeeding and maternity leave are poorly enforced. Generally, public health practitioners believed that women *faced* real problems accessing food for their children, not that the women *themselves* were the problem. Public health practitioners were largely very sympathetic toward women who struggled to feed their children healthy foods. Low literacy rates and low rates of education in general across the population were cited as problems that contributed to women either choosing not to follow or being unable to follow the instructions given by health care workers. Only once did the researcher encounter a public health practitioner who thought that malnourishment in children was the fault of the mother, that in general, mothers who have malnourished children face this problem because of laziness.



## 5.2 MOTHERS' FOOD CHOICE

### 5.2.1 Conflicting Health Messages

Many mothers in this study reported that the nutrition information they were taught was different from what their friends and sisters received. One participant lamented:

My issue is about the conflicting messages. [Mimicking a conversation with her friend] “Where did you get that from? The nurse didn’t tell me that!” The nurses don’t really have time to be giving out that information, they see that as extra on their work load, and they need to get the mother out of the hospital fast enough to get another one in.

None of the participants reported learning false or incorrect information from public health practitioners; rather, they appear to have been exposed to different parts of the program. Not all women were given the exact same health education message, and this is the likely reason that women had different explanations for the meaning of *tri kaen kakae*.

All of the public health practitioners interviewed in this study believe in and support nutrition education as an important part of their work. Breastfeeding education was particularly highly valued. However, many people reported feeling rushed to see a lot of women in one day, which may cause rushed delivery of information. Some nurses reported seeing 200 babies in one day for well-baby check-ups. The situation in Vila Central Hospital was particularly hectic. One public health practitioner explained that they keep patients for eight to 12 hours for a normal delivery. They have a staff of eight midwives and two nurses for everyone in the maternity ward. They rotate through these staff members to provide 24-hour care at the hospital. In 2009, the maternity ward averaged 150 deliveries a month, but in 2010 it averaged 200 deliveries per month. Staff at Vila Central Hospital had already seen one month with over 250 deliveries, and they were only five months into the year.

As is common in health care in general, and in the developing world, resources are stretched thin, and this study found health care workers are working very hard to provide quality care. With such rapid turnover in patients it is impressive that Vila Central Hospital has such a high breastfeeding initiation rate, with 85.9% of women begin breastfeeding within one hour of birth, which is higher than the national average of 72% (Vanuatu 2008). It is likely that nutrition education messages are perceived to be delivered inconsistently because resources are stretched thin, and health care practitioners have a limited amount of time to spend with a high volume of patients. It might also be that, given limited time, public health practitioners emphasized the information that they thought to be most important to the particular family they were dealing with at the time, which is arguably a good tactic for dealing with the problem of overcrowding. One health worker wanted mothers to be more active in seeking out advice: “Mothers here are too shy. They don’t ask questions, and when they don’t ask questions they don’t learn much from the nurse or health worker.” Public health practitioners recognize that conflicting health and nutrition education messages could cause serious problems that impact the health and survival of infants and young children.

### **5.2.2 Food Choice as a Negotiation**

Based on this evidence, it is clear that mothers are not the sole decision makers when it comes to feeding children. Mothers must consider multiple factors such as access to money and pressures from kin when considering what food to provide. “Nutrition, family, pikinini, it’s the mother’s duty,” reported one mother. But the feeding styles women practice do not always match the choices they wish they could make. Another participant lamented, “I want my son to have local food, but it’s very expensive, and it’s easier to feed him rice.” Yet another mother

confessed, “I feel pressured to buy formula milk because my work demands a lot of my time.” This research illustrates that mothers feel the burden of managing family nutrition and work with limited resources.

In addition, many women use grandmothers as caregivers while they are working during the day. In these cases women have even less of a ‘choice’ in how their babies are fed because the grandmothers will do what they think is best, even if that goes against the views of the mother, particularly when the mother is not home. When asked about problems that she faced with nutrition education, one health practitioner explained that “Grandmothers are a big part of the problem.”

One public health worker worries that “Young mothers don’t have a voice at all. They get unsolicited advice and words all the time, even from people they don’t know.” She followed this by telling a story of a young mother with her infant on the bus. As the mother sat there and people smiled and cooed over the baby, they also told her what she should feed him and asked questions about his sleep habits. Mothers hear lots of opinions, but also face all the blame and burden of raising healthy, well nourished children. Often mothers have to sift through information from health care workers and kin, and choose for themselves, or they need to follow the advice of a watchful grandmother who is living with the family. Therefore, this is a very sensitive situation. Thus food becomes less a choice and more a negotiation—a balance of multiple obligations.

## **6.0 CONCLUSIONS AND RECOMMENDATIONS**

Despite the implementation of the *tri kaen kakae* nutrition education program, Vanuatu is still experiencing rates of malnutrition in children that are higher than many of its neighboring Pacific island nations. In an effort to better understand why this problem persists, this study was implemented to determine the extent to which kin networks influence mothers decision-making processes regarding infant and child feeding. This project has illustrated that mothers' decisions are a negotiation between pressures from fathers, grandmothers and other kin, and new advice from public health practitioners.

One key finding of this research is that it is important to consider not only mothers but also fathers, grandmothers and community members in targeting nutrition education. All of these community members should be included in nutrition education programs. Mothers are not the sole decision-makers since they get frequent advice and/or pressure from a number of other people. Many mothers are also employed, and feel that they are unable to provide breastmilk to their infants due to time and financial constraints. Ultimately, women are working to manage advice and pressures to care for their children in a way that is beneficial to the child but also in a way that satisfies their obligations to respect other family members' opinions. Grandmothers should be valued as a community resource, and when they are included in programs they can help create positive change within a community. Researchers are beginning to appreciate this in public health interventions; for example Moestue and Huttly (2008) write:

there is an increasing realisation within the field of nutrition that changing mothers' behaviour through targeted health education is difficult without simultaneously tackling underlying societal issues and intra-household power relations, which are known to influence mothers' decision-making and actions (158).

This provides another example for including a wide audience in nutrition education programs—an approach that could be extremely beneficial in Vanuatu.

## **6.1 RECOMMENDATIONS**

Interventions that are inclusive of kin networks and grandmothers in particular can be extremely effective. In a project in Senegal, grandmothers proved to be influential:

Evaluation data showed that before grandmother-focused activities began, only 57% of grandmothers were advising younger women to give colostrum to their infants. By the end of the intervention, almost all grandmothers (97%) were giving this advice to their daughters and daughters-in-law. Similarly, at the outset, only 59% of all grandmothers were advising young mothers to give enriched porridge to their offspring as a first complementary food, whereas the final evaluation revealed that 97% were preparing and giving an enriched porridge. In addition, the final evaluation showed that changes in younger women's practices were greater in communities where nutrition education activities were carried out with grandmothers as compared to places where only younger women participated in these activities, providing additional evidence of the influences of grandmothers' advice on younger women's practices (Aubel 2006:3-4).

Grandmothers generally want to be supportive of their daughters and daughters-in-law and offer the best encouragement and advice that they can. The above-mentioned research from Senegal illustrates that grandmothers respond to nutrition education programs and actively pass on advice, or remind mothers of advice that was disseminated during educational programming. It is likely that analogous results will be seen in other areas where grandmothers have similar access to and responsibility for caring for children, and similar social status within a community or

family. Therefore, including grandmothers should be a critical component of nutrition education programs in these types of similar cultural settings. Based on the active role that grandmothers play in Vanuatu as demonstrated in this study, it is likely that including grandmothers in nutrition education programs could have positive effects on the health status of infants and children.

One way to reach grandmothers without significantly increasing the costs of nutrition education programs would be to encourage them to attend a number of antenatal, post natal and/or well baby check-ups with mothers. In this way nutrition education information could be delivered simultaneously to mothers and grandmothers. Another strategy for reaching grandmothers and other kin is to partner with churches to deliver nutrition education before or after services. Ni-Vanuatu are very religious, and church attendance is high, particularly in smaller villages where attendance is nearly 100% in some places. As families attend services together, offering nutrition education programs through church could be an effective method for reaching a large number of people.

This research suggests that grandmothers also play an important role in caring for children. In Port Vila in particular, grandmothers are commonly caregivers for children while mothers are away working during the day, or sometimes simply as babysitters for shorter periods of time. Regardless of the regularity of this time, they are frequently responsible for preparing meals for their grandchildren and as such could benefit from nutrition education.

The *tri kaen kakae* program has been effective in reaching many people in Port Vila. However, there is confusion as to what *tri kaen kakae* actually means. Streamlining and clarifying the message could help public health practitioners deliver the message in a clear and concise manner that could be significantly more effective. In addition, there is much confusion about fatty, sugary foods and how they fit into the *tri kaen kakae* model. Nutrition education

needs to be expanded to help people understand the health risks of junk food, and how and when it is appropriate to indulge in this type of food.

Furthermore, there are some types of imported foods that are healthy, and many ni-Vanuatu eat these foods as well. More imported foods should be explained in the *tri kaen kaka* program. This could be done in a manner that prioritizes local food, but that also informs people of how to make healthier choices with imported foods as well. Ignoring those foods is not beneficial; rather, it is leading to confusion about where those foods fit within the model. People still eat imported foods; they just do not understand the health implications of eating this type of food. Providing a more comprehensive model of nutrition education can eliminate some confusion and could ensure that both adults and children are consuming a more nutrient rich and balanced diet. This type of diet could be beneficial in attacking both types of nutrition problems present in Vanuatu—under nutrition in children, and over nutrition in adults.

## **6.2 FUTURE RESEARCH**

Some public health practitioners have begun to recognize the importance of including the perspective of grandmothers in interventions. Aubel (2006) explains that there are five critical steps to a generic grandmother-inclusive methodology:

- (i) rapid assessment of grandmothers' role and influence in the household and community related to the issue of interest; (ii) public recognition of grandmothers' role in promoting health and development of families and communities; (iii) participatory communication/education activities that engage first, grandmother networks, and second, other community members, in discussion of both traditional and modern practices; (iv) strengthening the capacity of grandmother leaders and networks to promote improved practices with other grandmothers, in families and in the community-at-large; and (v) ongoing monitoring and documentation for learning (Aubel 2006:3-4).

This framework can be used along with rapid assessment techniques for projects with limited time and budget. In addition, this can be a useful framework for expanded projects and should be considered more widely in future research on maternal and child nutrition, particularly in the developing world.

In addition, more qualitative research needs to be conducted to understand how, and the extent to which grandmothers and extended kin networks influence the health status of children. The literature widely reports that the presence of grandmothers can have an effect, sometimes positive and sometimes negative, on the health of children. However, this research is largely quantitative and does not fully demonstrate how and why grandmothers and kin can have this effect. This study began to examine this, but much more detailed research is needed to better understand this situation.

This study has provided data to show that grandmothers and other kin members play an important role in mothers' decision-making processes regarding infant and child feeding. However, this study is limited in time and scope. The study was conducted over a period of one month with 22 individuals participating in interviews. Future research needs to be conducted to expand this study to include interviews with more mothers, and with mothers from more diverse socioeconomic and educational backgrounds. This is important because these women could have different experiences with their kin networks that could illuminate both new problems and novel approaches to addressing discrepancies in advice for infant and child nutrition. In addition it would be beneficial to interview more women from rural Efate to better consider the experiences of women who have less regular access to hospitals.

Only two fathers were interviewed in this study but their perspectives on this problem were enlightening. Expanding this project to include the opinions and experiences of more



fathers will be beneficial. In addition, no grandmothers were interviewed, so this study does not provide insight into their point of view. Future research that involves grandmothers could yield significant findings. Research that involves interviewing husbands and grandmothers about their knowledge of child feeding, how they choose to share that knowledge, and the degree to which they seek to convince mothers to follow these practices, or implement them themselves as they care for children, will be critical to this research. Data from grandmothers will also be significant for understanding how child-feeding practices have changed over longer periods of time. It will also be helpful to interview mothers, fathers and grandmothers from the same family, as they may have differing opinions on the health status of children, and the best way to care for and feed children.

While researchers are beginning to recognize the authority grandmothers and other kin wield in familial feeding practice, there are still relatively few studies that elucidate this matter. In particular, there are almost no studies that seek to appraise the extent of the impact of kin networks on mothers' decision-making apropos infant and child feeding in Pacific island countries. This fieldwork investigation yields new insight in the extent to which kin influence mothers' decision-making, while also detailing the discrepancies in knowledge and beliefs that different members of a kin network possess concerning healthy food choices. Findings from this study can be applied to public health practice in nutrition education in Vanuatu. Modifications in nutrition education dissemination including the expansion of the target audience to include kin networks could aid in the reduction of malnutrition in young children, enabling a valuable community resource, grandmothers, to become a powerful ally in supporting positive changes in infant and child nutrition and the health of the population.

## **APPENDIX: STATEMENT OF ETHICS**

Maintaining a high standard of ethical conduct of research is important, and these values were considered in all parts of this project. Informants participated on a voluntary basis with the understanding that they could withdraw from an interview or from participant observation at any time with no questions or penalty. This project did not involve interviewing or weighing/measuring children at any point in time because the focus of this project is on the influence of kin networks and decision-making processes that influence infant and child feeding practice. All interviews were conducted with mothers, fathers, grandmothers or other caregivers who are over the age of 18. This research was screened for approval by the University of Pittsburgh's Institutional Review Board and by the Vanuatu National Cultural Council and Ministry of Health, and ascribes to their research code of ethics.

All names used in this text are pseudonyms in order to protect the privacy and anonymity of research participants. Exact locations and times of interviews have also been changed to ensure the privacy of those individuals who graciously participated in this project. All photos used in this paper were taken by the author herself and are used to enhance the readers' understanding of life in Vanuatu. They are not associated with quotes or interviews presented in this paper, and do not indicate that any one person participated in this project.

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